

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1 1 (original): A method for preparing a substrate for detecting at least one analyte
2 in a sample comprising the steps of:

3 a) exposing the sample to at least two different selectivity conditions, each
4 selectivity condition defined by the combination of an adsorbent and an eluant, to allow retention
5 of the analyte by the adsorbent;

6 b) identifying by desorption spectrometry at least one selectivity condition under
7 which the analyte is retained; and

8 c) preparing a substrate comprising at least one adsorbent of an identified
9 selectivity condition.

1 2 (original): The method of claim 1 wherein the step of identifying comprises
2 identifying at least one selectivity condition under which a plurality of analytes are retained.

1 3 (original): The method of claim 1 wherein the step of preparing comprises
2 preparing a substrate comprising a plurality of adsorbents that retain the analyte under an elution
3 condition as a multiplex adsorbent.

1 4 (withdrawn): A method for progressively identifying a selectivity condition
2 with improved resolution for an analyte in a sample comprising the steps of:

3 (a) identify a selectivity condition that retains an analyte in a sample by:

4 (i) exposing a sample to a set of selectivity conditions, each selectivity
5 condition defined by at least one binding characteristic and at least one elution characteristic;

6 (ii) detecting analyte retained under each selectivity condition by
7 desorption spectrometry; and
8 (iii) identifying a selectivity condition that retains the analyte; and
9 (b) identifying a selectivity condition with improved resolution for the analyte by:
10 (i) selecting at least one binding characteristic or elution characteristic
11 from the identified selectivity condition and adding it to a selectivity characteristic constant set;
12 (ii) exposing the sample to a modified set of selectivity conditions wherein
13 each selectivity condition in the modified set comprises (1) the selectivity characteristics in the
14 constant set and (2) a binding characteristic or elution characteristic that is not in the constant set;
15 and
16 (iii) identifying a selectivity condition from the modified set by desorption
17 spectrometry that retains the analyte with improved resolution compared with a prior identified
18 selectivity condition.

1 5 (withdrawn): The method of claim 4 further comprising the step of repeating
2 step (b) at least once.

1 6 (withdrawn): The method of claim 5 comprising repeating step (b) until a
2 selectivity condition is identified that retains only the target analyte from the sample.

1 7 (withdrawn): A substrate for desorption spectrometry comprising an adsorbent
2 from a selectivity condition identified to resolve an analyte by the method of claim 4.

1 8 (withdrawn): The substrate of claim 7 in the form of a kit further comprising
2 an eluant from the selectivity condition or instructions on using the eluant in combination with
3 the adsorbent.

1 9 (withdrawn): A method for determining whether an analyte is differentially
2 present in a first and second biological sample comprising the steps of:

3 a) determining a first retention map for the analyte in the first sample for at least
4 one selectivity condition;

5 b) determining a second retention map for the analyte in the second sample for the
6 same selectivity condition; and

7 c) detecting a difference between the first and the second retention maps;
8 whereby a difference in the retention maps provides a determination that
9 the analyte is differentially present in first and second samples.

1 10 (withdrawn): The method of claim 9 wherein the first biological sample
2 derives from a healthy subject and the second biological sample is from a subject suffering from
3 a pathological condition.

1 11 (withdrawn): The method of claim 9 wherein the biological samples comprise
2 first and second cell extracts.

1 12 (withdrawn): The method of claim 9 wherein the retention map comprises a
2 plurality of selectivity conditions.

1 13 (withdrawn): The method of claim 9 comprising, before the step of detecting,
2 the step of converting the analyte into at least one fragment whose molecular mass smaller than
3 the mass of the analyte.

1 14 (withdrawn): The method of claim 9 wherein the step of detecting a
2 difference is performed in a programmable digital computer.

1 15 (withdrawn): The method of claim 9 for determining whether an agent alters
2 the expression of a protein in a biological sample further comprising the step of administering
3 the agent to a first biological sample but not to a second biological sample.

1 16 (withdrawn): The method of claim 10 wherein the sample is selected from the
2 group consisting of blood, urine, serum and tissue.

1 17 (withdrawn): The method of claim 10 further comprising identifying an
2 analyte that is present in a greater amount in second biological sample than in the first biological
3 sample, whereby the analyte is identified as a candidate diagnostic marker for the pathological
4 condition.

1 18 (withdrawn): The method of claim 11 wherein the first cell extract is derived
2 from a healthy cell and the second cell extract is derived from a cancer cell.

1 19 (withdrawn): A method of diagnosing in a subject a disease characterized by
2 at least one diagnostic marker comprising the steps of:

3 a) providing a substrate for use in desorption spectrometry that comprises at least
4 one addressable location, each addressable location comprising an adsorbent that resolves at least
5 one of the diagnostic markers under an elution condition;

6 b) exposing the substrate to a biological sample from the subject under the elution
7 condition to allow retention of the diagnostic marker; and

8 c) detecting retained diagnostic marker by desorption spectrometry;
9 whereby detecting retained diagnostic marker provides a diagnosis of the
10 disease.

1 20 (withdrawn): The method of claim 19 wherein diagnosis involves detection of
2 a plurality of diagnostic markers and the addressable locations comprise adsorbents that resolve
3 the plurality of diagnostic markers.

1 21 (withdrawn): A kit for detecting an analyte in a sample comprising (1) a
2 substrate for use in desorption spectrometry that comprises at least one addressable location,
3 each addressable location comprising an adsorbent that resolves an analyte under a selectivity
4 condition comprising the adsorbent and an eluant, and (2) the eluant or instructions for exposing
5 the sample to the selectivity condition.

1 22 (withdrawn): The kit of claim 21 for the diagnosis of a disease wherein the at
2 least one analyte is at least one diagnostic marker for the disease.

1 23 (withdrawn): The kit of claim 22 wherein the disease characterized by a
2 plurality of diagnostic markers and the substrate comprises a plurality of addressable locations,
3 each addressable location comprising an adsorbent that resolves at least one of the diagnostic
4 markers.

1 24 (withdrawn): The kit of claim 23 wherein at least one adsorbent is a multiplex
2 adsorbent comprising adsorbent species that each retain at least one diagnostic marker.

1 25 (withdrawn): The kit of claim 23 wherein at least one adsorbent does not
2 comprise a biopolymer.

1 26 (withdrawn): The kit of claim 23 wherein at least one addressable location
2 comprises a ligand specific for a diagnostic marker.

1 27 (withdrawn): The kit of claim 26 wherein the ligand is an antibody.

1 28 (withdrawn): A substrate for desorption spectrometry comprising at least one
2 adsorbent in at least one addressable location wherein the at least one adsorbent resolves a
3 plurality of diagnostic markers for a pathological condition from a patient sample.

1 29 (withdrawn): The substrate of claim 28 wherein at least one adsorbent does
2 not comprise a biopolymer.

1 30 (withdrawn): The substrate of claim 28 wherein one adsorbent resolves the
2 plurality of diagnostic markers.